EXAMPLE OF TEST DOCUMENTATION HIERARCHY

The following is an example of the differences in the level of detail between the various layers of test documentation. A sample requirement is shown below. The item in parentheses indicates a unique, requirement number used for traceability purposes.

Requirement: "The system shall produce the following types of printed reports detailing changes in financial status for a selected case (FINRPT-1), or selected individual (FINRPT-2). If the selected individual is involved in multiple cases, the system shall prompt the user to choose either a specific case or all cases for the data to be used in the report. (FINRPT-3)

a. Support payments made to the State by the Payor (FINRPT-4)

b. Payments made to the Payee by the State (FINRPT-5)

c. Payments made to the Payee by the Payor (FINRPT-6)

d. Overdue payments (greater than 45 days overdue) (FINRPT-7)

e. Balance on the Payor's account (FINRPT-8)

f. Balance on the Payee's account (FINRPT-9)

The format and fields for each of these reports are described in Appendix A."

Test and Evaluation Plan (Project Office Responsibility)

Section x.x Verification of Financial Reports

Due to the critical nature of the financial reports (FINRPT-4 through FINRPT-9), these reports will be rigorously tested and reviewed for accuracy. After the contractor's integration tests for the reports have been executed, the financial SMEs will perform data analysis of the test results from the printed reports. Totals generated on the reports will be hand-calculated to verify accuracy, and will be compared to the input data to ensure the calculations were correct. All interest calculations will be hand-verified to ensure rounding algorithms have been correctly implemented.

During the contractor's system test, the financial SMEs will…

Test Plan (Contractor or Test Group Responsibility)

Section x.x Test Methodology

Verification of Printed Reports

All existing financial reports (FINRPT-6 through FINRPT-9) will be verified to ensure the data is correct. These reports will be executed on both the legacy and new systems, and the outputs compared to ensure the format and data are identical (except for the newly required fields of xxx, xxx, and xxx).

New financial reports (FINRPT-4 and FINRPT-5) will be verified by hand-calculating the fields on the report and comparing them to the contents of the database. Special attention will be paid to the calculations for computing interest, to ensure the rounding computation is correct.

For reports where there are known errors or problems, the new reports will be checked to ensure the problem was fixed in the new system. The specific scenario(s) that caused the error will be verified, as well as the general cases listed below.

At a minimum, the following types of cases will be tested for each report, for both the selection based on a case number and based on an individual's name:

a. One payor, one payee

b. Two payors, one payee

c. One payor, two or more payees

d. ….

Section x.x Data Conversion Testing

After the legacy data has been converted to the new databases, a subset of tests will be executed to verify that the converted data is correct. The verification method will be the same as that described under Section x.x Verification of the New System, though the number of tests will be reduced. At a minimum, the following tests will be executed...

Test Design/Test Case (Contractor or Test Group Responsibility)

Section x.x Financial Reports

Features to Be Tested

For the Financial Reports (FINRPT-4 thru FINRPT-9), the following features will be tested:

a. Selection of the reports from the menu

b. Selection of a Payor

c. Selection of a Case

d. Calculation of Interest and Totals

e. Correct Format and Content

Method of Verification

The test data will consist of the data converted from the legacy system. The data conversion process must have been completed and verified prior to performing these tests.

Legacy reports will be compared to the new reports to ensure…

Common errors will be checked including: divide by zero calculations, no payment data on file, …

Financial SMEs will hand-calculate…

Pass/Fail Criteria

All calculations must be correct to 2 decimal places.

Interest calculations must be correct to 3 decimal places and must round correctly (round up if the least significant digit is 5 or greater).

Divide by zero errors must be handled by generation of an error message on the report and an error message displayed to the user requesting the report.

The format must meet the department standards as specified in xxxxx, including page numbers, header and footer information, and appropriate classification markings.

The system must prompt the user to select either the case number or an individual (by first and last name) upon which the report data will be retrieved. (FINRPT-1 and FINRPT-2)

If the selected individual is involved in multiple cases, …. (FINRPT-3)

The reports displayed the correct data when compared with the inputs from the database, and when compared to the legacy system reports.

FINRPT-4 y / n

FINRPT-5 y / n

FINRPT-6 y / n

…

List of Test Cases

Report A

Selected Case – One Payor, One Payee	Case #xxxxx
Selected Case – One Payor, Two Payees	Case #xxxxx
Selected Case – Two Payors, One Payee	Case #xxxxx
….	
Selected Individual, Multiple Cases, All	Case #xxxxx
Selected Individual, Multiple Cases, specific case	Case #xxxxx

Report B

…

Inputs

Input	Case A	Case B	Case C
Case Number xxxx	proc 1		proc 1
Case Number xxx		proc 3	
Individual xxxxx xxxx	proc 2	proc 4	…

Outputs

Outputs	Case A	Case B	Case C
xxxxxx	proc 1		proc 1
xxxxxx		proc 3	
xxxxxx	proc 2	proc 4	…

Test Environment Settings

Must be loaded with data for the following cases from the data conversion effort

xxxxx, xxxxx, xxxxx,

Must have printer installed

Must have Adobe Acrobat installed

….

Special Setup Procedures

None

Test Procedure (Contractor or Test Group Responsibility)

Setup Procedures

Verify data for the following cases were correctly loaded…

Verify the printer is online and accessible

Inputs

user login/passwords

xxxx

Expected Outputs

xxxxx

xxxxx

Procedure #1

1. Login into system as a general user, using the login/pwd provided.

   Expected Result: System presents welcome message and displays the case management main menu

2. Select the ……

3. Select the Case Number button, and type Case Number xxxx into the text field. Press Enter when done.

   Expected Results: System prompts user to select a case number, upon which to base the report (FINRPT-1). The user can enter a case number in the text box. After pressing enter, the system validates the case number is valid.

4. …

Analysis of Results

1. Verify the following reports match the reports generated on the legacy system, using the same case data.
2. Verify the totals are correct. May be performed by the Financial SMEs.
3. Verify the format is correct. Refer to xxxxx for format requirements.
4. ….

Pass/Fail Criteria

1. Did the reports generated by the new system match the legacy system reports?
   a. Report A.1 Y / N
   b. Report A.2 Y / N
2. Are the totals for the reports correct?
   a. Report A.1 Y / N
   b. Report A.2 Y / N
3. ….

EXAMPLE OF TEST PHASES

The following is an example of how the focus of testing changes for each of the test phases. Using the requirement from above, the purpose/focus of the test for each phase is described.

Unit Test (for each report)

- Verify field sizes and number of decimal places are correct
- Verify font size, spacing, headers, footers, page numbers, report date, case header, and classification/sensitive markings are correct
- Verify positive, negative and zero dollar balances display correctly
- Verify common error messages print correctly on the report
- Verify multiple case Payor information displays correctly (i.e., with appropriate subheadings for each case, subtotals for each case, and the roll-up totals)
- Verify that the data on the report is correctly retrieved and calculated from data in the database
- Compare reports to legacy system reports
- Perform boundary and range-of-value testing to ensure all cases are handled (e.g., if the field is defined as having 5 numeric characters plus 2 decimal places, make sure the report correctly displays the values of $99,999.99, $0.00, and -$99,999.99; also what happens if the database field is NULL or blank?).
- ….

Functional/Integration

- Verify each report can be selected from the print menu
- Verify that the report can be printed on each of the system printers
- Verify that the report can be sent to Adobe Acrobat to create a PDF file which can be saved to disk
- Verify that error messages are printed on the report and displayed on the user's workstation for confirmation
- Verify that the reports menu is displayed after each report is printed
- Verify that the user can select to print the reports for either a case or an individual
- …

System

- Verify that the user can select the print menu and print a report from any of the following screens…
- Verify that when a payment is recorded, the updated information is reflected on the appropriate report
- Verify each report requirement has been satisfied and is incorporated in the system
- Verify that the reports are not accessible from the Internet
- Verify that the reports accessible on the intranet require a user id and password before any selections are made

External Interface

- N/A

Performance

- N/A

User Acceptance

- Verify all reports printed as part of the user business scenarios are correct. Verify the totals and formats are correct.

Pilot

- Verify all reports printed as part of the user business scenarios are correct. Verify the totals and formats are correct.